

Short Note

***Vampirolepis murini* sp. nov. (Cestoda: Hymenolepididae), a New Tape-worm Parasite of *Suncus murinus* from Pakistan**

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Noor-un-Nisa and Rafia Rehana (1995) *Vampirolepis murini* sp. nov. (Cestoda: Hymenolepididae), a new tape-worm parasite of *Suncus murinus* from Pakistan. *Zoological Studies* 34(2): 136-140. A new species of Hymenolepid cestode *Vampirolepis murini* sp. nov. is described from the common house shrew *Suncus murinus* from Pakistan. The new species is characterized by smaller sized strobila, the size and shape of the rostellar hooks, and comparatively smaller sized oncosphere.

Key Words: Common house shrew, Tape-worm, sp.nov.

Internal parasites of the common house shrew *Suncus murinus* have been little studied in Pakistan. A few reports which deal with hymenolepid cestodes of shrews are by Buscher (1972), Bilqees and Malik (1974), Bilqees and Sharifuddin (1978), and Shafi and Rehana (1986). The present communication describes an addition to the cestode parasite fauna of shrews of Pakistan.

Reports from neighboring countries which deal with tape-worm parasites of shrews are by Voge (1957), Singh (1958), Crusz and Sanmugasundram (1971), and Vaucher and Tenora (1971). Reports on parasites of shrews from countries other than those neighboring Pakistan include Linstow (1907), Meggit (1927), and Hubscher (1937). Mascoma et al. (1986) have described new species of the genus *Hymenolepis* from a Eurasian shrew from southern France. In addition there are several other reports which deal with the parasites of shrews worldwide (Schmidt 1986, Swada and Harada 1986 1989).

Recently Jones and Anderson (1990) described *Vampirolepis peroryctis* from the intestine of *Peroryctis raffrayanus* in Papua New Guinea, while George et al. (1990) reported hymenolepid cestodes from the crucidurine shrews of the rain-forest zone of Nigeria.

Materials and Methods—Three live-trapped specimens of *Suncus murinus* were obtained from the Empress Market (Commercial Area), Karachi, Pakistan. These were brought to the laboratory, anesthetized with chloroform, dissected and examined for endo-parasites. Tape-worms recovered from the small intestine were alive, and were kept in normal saline until later fixed in 70% ethyl alcohol at room temperature. The specimens were lightly pressed during fixation between two slides and kept in FAA solution for 24 hours. Soon after this, they were processed in a graded series of alcohol, stained with Mayer's

caralum, cleared in clove oil and mounted in Canada balsam. Measurements are in millimeters or millimicrons, and dimensions are expressed as length by width. Drawings were prepared with the help of a camera lucida. The specimens are deposited at the Helminthological Collection of the Medical Zoology Laboratory, Vertebrate Pest Control Laboratory, Tropical Agricultural Research Institute, P.O. Box-8401, University Campus, Karachi-75270, Pakistan.

***Vampirolepis murini* sp. nov.** (Figs. 1-5)

Type host: *Suncus murinus*.

Site of infection: Small intestine.

Locality: Empress Market, Karachi, Pakistan.

Date of Coll.: Nov. 11, 1990.

Specimens deposited in M.Z. VPCL/TARI Helm. Coll.

Accession Nos: Holotype 15, Paratypes 16-18.

Based on four complete specimens with scolices and portions of three others, prepared as stained whole mounts.

Strobila: Total length 8-15 mm; maximum width 90-860 μ m. Proglottides craspedote, wider than long; early mature proglottides measure 86-120 \times 150-180, mature proglottides 88-140 \times 310-640 and gravid proglottides 160-200 \times 620-860. Genital pores unilateral, situated above the midpoint of the lateral margins of the segment.

Scolex (Fig.1): Roughly quadratic-shaped rectangular in lateral view, 220 \times 245. Neck approx. 260 \times 220 wide behind the scolex. Suckers unarmed, cup-shaped (Fig. 1), approx. 55-60 \times 60-70. Rostellar sac 100-120 \times 76-80. Rostellum broad, conspicuous, armed with 12-14 hooks arranged in a single row (Fig. 2); hooks have curved blades, shorter, downward-directed, handles, and blunt, rather slender guards. Hook length 15-17 μ m.

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Male reproductive organs (Fig. 3): Three testes are arranged in a triangle; one poral, 2 aporal; aporal testes obliquely tandem with anterior testis laterally displaced; testes irregularly oval, aporal testes oval to elongate; poral testis rather oval 56-58 × 67-68; aporal testes 95-98 × 100-130 in fully mature proglottides. The cirrus sac elongate; pyriform portion extends beyond the longitudinal excretory vessels into the medulla; it contains an internal seminal vesicle measuring 33-50 × 90-100. The external seminal vesicle is prominent, sac-shaped, lies just behind the cirrus sac, anterior or anteromedial to poral testis, and is transversely elongate, measuring 20-31 × 75-80. Genital ducts pass dorsally to longitudinal excretory vessels.

Female reproductive organs (Figs. 3,4): The ovary is median, or tending somewhat towards the poral side; it is compact, bilobed or trilobed in some segments, 39-40 × 128-230. Vitellaria are post ovarian, irregularly oval 38-40 × 50-52. The vagina is postero-ventral to the cirrus sac. The uterus originates as an irregularly lobed transverse sac which inflates laterally into the gravid segments; eggs are roughly rounded or oval measuring 29-41 × 30-38 and containing an oncosphere which is enclosed in an inner envelope. The oncosphere has three pairs of lancet-shaped hooklets (Fig. 5). The seminal vesicle is persistent in gravid segments.

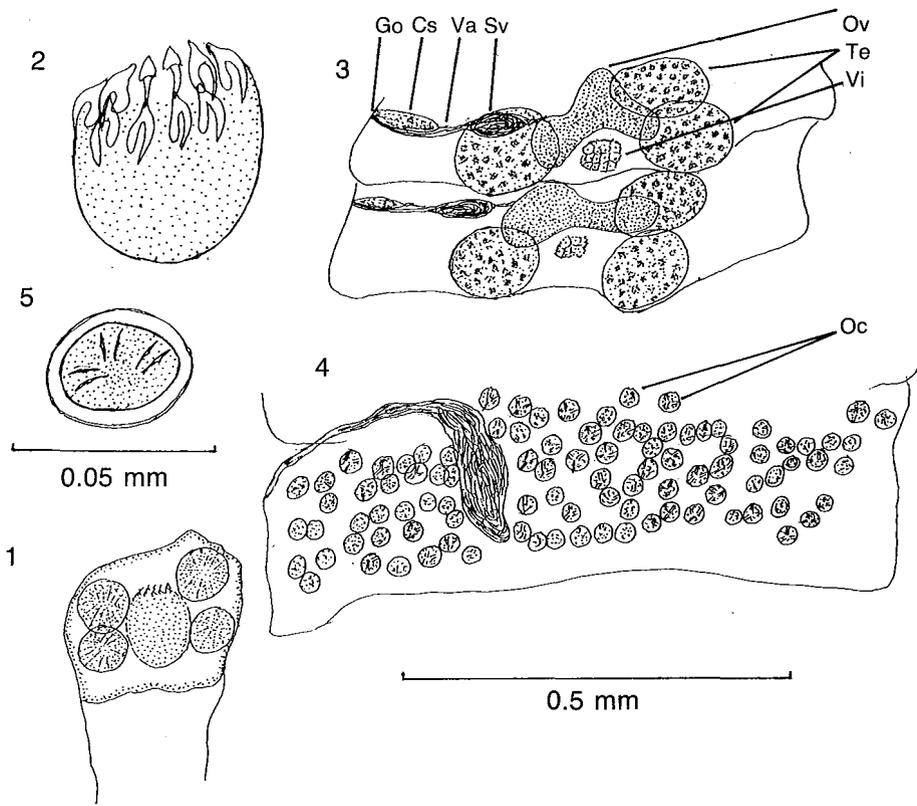
Discussion—Spasskii (1954) proposed the genus *Vampirolepis* for those hymenolepidids with unarmed suckers, a well developed rostellum with a rostellar sheath, and a circle of variable

numberd (up to 50) Y-, rosethorn- or wrench-shaped hooks with comparatively long handles, and broad guards nearly as long as, or somewhat longer, or shorter, than the blades (Schmidt 1986). In view of the above features, the present specimens conform to the generic diagnosis of *Vampirolepis*. Hence, species reported under the generic name *Hymenolepis* Weiland, 1885, having rostellar hooks, are considered to belong to the genus *Vampirolepis*. The principal difference between the two genera, i.e., *Hymenolepis* and *Vampirolepis*, is the absence of an armed rostellum in the former and its presence in the latter, as mentioned by Schmidt (1986).

Henry and Bushcher (1972) reported *Vampirolepis* spp. from *Tatera indica* and *S. murinus* in Pakistan. *Hymenolepis mujibi* Bilqees and Malik (1974) and *Hymenolepis jacobsoni* Shafi and Rehana (1986) are considered by the present authors as *Vampirolepis mujibi* and *Vampirolepis jacobsoni*, respectively (due to the presence of armed rostellum), and both have been recorded from *S. murinus* in Pakistan.

The present specimens differ from closely related species bearing 10-14 rostellar hooks, including species recorded from Pakistan, either in general body dimensions, size of the hooks, size of the oncosphere or host or locality records (Table 1).

In particular, several species recorded under the generic name *Hymenolepis* reported from neighboring countries can be considered as new combinations under the genus *Vampirolepis* infecting crocidurine hosts (Schmidt 1986). Additionally, Cruz and Sanmugasunderam (1971) described two species



Figs. 1-5. *Vampirolepis murini* sp. nov. 1. Scolex, 2. Rostellum and rostellar hooks, 3. Mature proglottides. Ov: ovary; Te: testes; Vi: vitellaria; Go: genital opening; Cs: cirrus sac; Va: vagina; Sv: seminal vesicle, 4. A gravid proglottid. Ut: uterus; Oc: oncospheres, 5. An egg with oncosphere. (Figs. 1, 3, and 4 are drawn to the same scale; Figs. 2 and 5 are drawn to a scale different from the other figures.)

Table 1. Comparison of closely related species armed with 10-14 rostellator hooks

Parameter	<i>H. jacobsoni</i> (Linstow 1907)	<i>H. minutissima</i> (Meggit 1927)	<i>H. jacobsoni</i> (Hubscher 1937)	<i>H. jacobsoni</i> (Vogel 1957)	<i>H. bhali</i> (Singh 1958)	<i>H. sunci</i> (Vaucher & Tenora 1971)	<i>H. mujibi</i> (Bilqees & Malik 1974)	<i>H. jacobsoni</i> (Shafi & Rehana 1986)	Present species <i>Vampro- lepis</i> <i>murini</i> sp. n.
Strobila length (mm)	34	2	18	-	38-41	15.5	-	20.12-59.51	8-15
Max. width (mm)	1.22	1.5	1.05	-	0.91-1.02	1.1	-	-	90-860(µm)
Scolex diameter/length (µm)	270/210	120/125	192	130-240	300-320	200-226/136-160	352	-	220/245
Rostellum diameter/length (µm)	-	46/75	39	34-40	47-50/30-45	42-50/30-45	92	length 210	46-48/50-51
Number of hooks	10	12	11	10	10	10-13	11	12	10-14
Length of hooks (µm)	21	16-18	18-21	17-18	18	19-20	29	21	15-17
Suckers Length/width (µm)	81	-	81	64-68/79-94	90-111	69-90/64-86	0.05-0.07/ 0.035-0.040 (mm)	-	55-60/60-70
Cirrus pouch length/width (µm)	-	-	150/45	-	140-170/30-40	107-141/32-64	-	-	33-50/90-100
Eggs Length/width (µm)	31/39	immature	35-45/30-33	32/36	40-50	49-58/38-45	35-36/50-52	0.009-10.0 (mm)	29-41/30-38
Oncosphere Length/width (µm)	29	immature	24	-	30/30	30-33/21-23	-	-	30-21
Locality	Java (Indonesia)	Rangoon (Burma)	Java (Indonesia)	Bombay (India)	India	Jalabad Afghanistan.	Pakistan	Pakistan	Pakistan
Host	<i>Suncus murinus</i> L.	<i>Crocidura caerulea</i> (Kerr)	<i>Crocidura</i> sp.	<i>Crocidura</i> sp.	<i>Crocidura</i> sp.	<i>S. murinus</i>	<i>S. murinus</i>	<i>S. murinus</i>	<i>S. murinus</i>

/ = diameter and length

- = range.

of this genus, namely *V. solisorex* from the Ceylon large shrew *Solisorex pearsoni* and *V. montana* from the Ceylon highland shrew *Suncus murinus montanus*. Both of these species differ mainly from the present specimens in the number, size and shape of the rostellar hooks in addition to general differences in the size of strobila, etc. Vaucher (1985) reported *Hymenolepis dasipteri* with a scolex bearing a row of 36-37 hooks from a Chiropteran host. *Vampirolepis banyulsensis* (Mascoma et al. 1986) comb. n. (syn. *Hymenolepis banyulsensis*) parasitizes the Etruscan shrew (Soricidae) in Banyuls (France). The species is characterized by the presence of 23-27 rostellar hooks, 23-26.5 μm in length.

Swada and Harada (1989) have reported five species of this genus from Taiwanese shrews: *Vampirolepis formosana* and *V. magnihamata*; from *Anourosorex squamipes yamashinai*; *V. sunci*, *V. sessilihamata*, and *V. gracilistrobila* from *Suncus myosurus swinhoi*.

These species differ from the present specimens mainly in having different hosts and locality, as well as in the number, shape, and size of the rostellar hooks, length of the strobila and position of the genital pores.

Sawada and Harada (1986) reported *V. notoensis* from *Crocidura dsinezumi chisai* Thomas, captured at Suzu-shi, Ishikawa Prefecture, and *V. amamiensis* from *C. horsfieldi watasei* Kuroda, captured at Setouchi-cho, Amami-Oshima, Kagoshima Prefecture, Japan. Both of these species differ mainly from the present specimens in the number, size and shape of the rostellar hooks, the size of the strobila and other related dimensions, as well as host and locality records.

V. peroryctis from the intestine of *Peroryctes raffrayanus* captured in the Western Highlands of Papua New Guinea differs from the present specimens in the number, size and shape of the rostellar hooks, the size of the strobila, and other related dimensions.

It is therefore necessary to designate a new species *V. murini* from *Suncus murinus* of Pakistan. The new species is characterized by smaller sized strobila, smaller size and shape of rostellar hooks, and a comparatively smaller sized oncosphere.

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寄生於 *Suncus murinus* 之巴基斯坦新種條蟲 *Vampirolepis murini*
(多節條蟲亞綱：膜殼條蟲科) 描述

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本文描述巴基斯坦一新種膜殼條蟲 *Vampirolepis murini*，寄生於香鼠 *Suncus murinus* 身上。此條蟲的特徵在於鏈體(Strobila)較小、頂突(Rostellar hooks)的大小和形狀、六鉤幼蟲(Oncosphere)的體型較小。

關鍵詞：香鼠，新種條蟲。

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